ROGERSON WATER DISTRICT (PWS 5420049)
SOURCE WATER ASSESSMENT FINAL REPORT

APRIL 8, 2004

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment Update for the Rogerson Water District, Rogerson, Idaho* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The Rogerson Water District (PWS # 5420049) drinking water system consists of two ground water wells, the Main Well described in the April 2002 Source Water Assessment (SWA) and the Back-up Well, added to this report. The Bureau of Land Management owns the Back-up Well and an arrangement has been made to use the Back-up Well in case of fire or loss of the primary source. A review of the Idaho Drinking Water Information System (DWIMS) and the State Drinking Water Information System (SDWIS) revealed water quality information for the Rogerson Water District drinking water system. No VOCs, SOCs, or microbial contaminants were recorded for the Rogerson Water District well water. The Rogerson Water District had some bacteria detections associated with the reservoir in 1995 and 1999. No confirmed bacteria detections have been recorded since the installation of filters over the reservoir tank vents.

In December 1996, barium and fluoride were detected in a water sample collected from the Main Well at concentrations of 0.067 milligrams per liter (mg/l) and 1.02 mg/l, respectively. These detections are well below the current Maximum Contaminant Level (MCL) for barium (2.0 mg/l) and fluoride (4.0 mg/l). In May 2002, arsenic was detected in a water sample collected from Well #1 at a concentration of 0.006 mg/l. In October 2001, the EPA lowered the arsenic MCL from 0.050 mg/L to 0.010 mg/L. However, public water systems have until 2006 to meet the new requirement. The IOCs arsenic and fluoride detected in the Rogerson Water District well water may be naturally occurring in the formations in which the wells are developed.

From September 1993 to November 2004, nitrate was detected in eight water samples collected from the Main Well at concentrations ranging from 1.0 mg/l to 3.28 mg/l. All seven samples contained

nitrate concentrations below 25% of the MCL for nitrate of 10 mg/l. A Sanitary Survey conducted in 1999 and again in 2003 indicated that the system was in substantial compliance with current Public Drinking Water Systems standards. However, the Sanitary Survey noted that the additional surface sealing should be applied around the wellhead to prevent contaminants from entering the well.

In terms of total susceptibility, the Rogerson Water District wells rated moderate for susceptibility to IOC, VOC, SOC and microbial contamination. The moderate ratings are mainly due to aquifer properties, and high countywide farm chemical use. The relative lack of potential contaminant sources within the source water assessment area of the Rogerson Water District wells reduced the potential total susceptibility rating.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Rogerson Water District, source water protection activities should focus implementing any improvements listed in the 2003 Sanitary Survey. If arsenic, fluoride, or nitrate concentrations increase significantly, the Rogerson Water District should investigate various systems like ion exchange, reverse osmosis, or activated alumina that could be used to treat these chemicals.

The Rogerson Water District should carefully monitor any spills on Highway 93, within the source water assessment area. With the exception of Highway 93, the Rogerson Water District contains no identified potential sources of contamination. The Rogerson Water District should seek to limit the development and operation of potential sources of contamination within the source water assessment area in order to ensure the future quality of the source water. Most of the source water protection designated area is outside the direct jurisdiction of the Rogerson Water District. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside of the direct jurisdiction of the Rogerson Water District. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Idaho Department of Environmental Quality Twin Falls Regional Office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT UPDATE FOR THE ROGERSON WATER DISTRICT, ROGERSON, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments for sources active prior to 1999 were completed by May of 2003. SWAs for sources activated post-1999 are being developed on a case-by-case basis. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Rogerson Water District drinking water system is a community system consisting of two ground water wells that serves approximately 60 people through 31 connections. The Bureau of Land Management owns the Back-up Well and an arrangement has been made to use the Back-up Well in case of fire or loss of the primary source. The wells are located south of Twin Falls and west of Highway 93 (Figure 1).

Nitrate represents a potential water chemistry issue recorded for the public water system. Nitrate was detected in the well water from September 1993 to November 2004 at concentrations approaching 25% of the MCL. Detections of arsenic and fluoride were recorded for the well at concentrations well below current MCLs. The IOCs arsenic and fluoride, detected in the Rogerson Water District well water, may be naturally occurring in the formations in which the well was developed. No VOCs, SOCs, or microbial contaminants were detected in the well water.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Banbury Basalt Aquifer in the vicinity of Rogerson, Idaho. The computer model used site specific data, assimilated by DEQ from a variety of sources including local area well logs and hydrogeologic reports summarized below.

The Rogerson Water District wells extract water from the Banbury Basalt, which overlies the Idavada Volcanics. The Idavada Volcanics unit (Miocene) consists of welded ash and tuff, rhyolite, and some basalt flows. The Idavada Volcanics are up to 2,000 feet thick in the Rogerson area and contain fractures and columnar joints, allowing some mixing of the geothermal ground water in the Idavada Volcanics with groundwater in the Banbury Basalt (Lewis and Young, 1989). The Banbury Basalt is of variable thickness and is the primary non-geothermal aquifer in the Rogerson area (Moffat and Jones, 1984). Basalt flows fracture at the surface as they cool. The fractures occur in the horizontal direction throughout the flow with localized, vertical fractures present in some areas. The Banbury Basalt is fractured and contains thin sedimentary interbeds. These fractures and sedimentary interbeds comprise the water producing zones in the Banbury Basalt. (Cosgrove, et al., 1997). The upper aquifer lies in quaternary basalt of the Glenn's Ferry Formation (Upper Pliocene - Lower Pleistocene). This sheet flow ranges in thickness from 500 to 2,000 feet thick (Young and Lewis, 1989). This unit produces moderate to large amounts of water in an aquifer ranging from 5 to 75 feet thick (Moffatt and Jones, 1984). These aquifers are considered confined to semi-confined in the case of columnar joints.

Regional ground water flow is to the north, but may vary with proximity to surface water bodies and the Snake River (Ralston and Young, 1991). Precipitation in the area is around 9 inches per year (Lewis and Young, 1989), however, a significant amount of infiltration occurs due to irrigation practices as well as canal seepage and loss from surface waters. Water leaves the area through consumptive use, loss to the Snake River, or underflow into the northern part of the Snake River Plain Aquifer (Cosgrove, et al., 1997).

WHAEM2000 was used to model the capture zones for the two Rogerson Water District wells. WhAEM2000 is a water balance model. Inputs of water to the model consisted of fluxes from canals and streams. The water table was controlled in the downgradient direction based on other modeling efforts (Cosgrove et al., 2000; Sparza, 2000; Bendixson, 2001). Aquifer parameters were set based on local specific capacity tests and collected information. The thickness of the aquifer was varied from 50 to 250 feet based on local well logs. Hydraulic conductivity (K) was varied from 25 to 50 feet/day, as obtained from a specific capacity test of the Back-up Well and published data (Moffatt and Jones, 1984; Cosgrove, et al, 2000). The model is bounded to the east and south by contact with silicic welded tuff ash and flow rocks. The simulations were conducted both for a summer condition with the canals providing water and a winter condition with the canal flux set to zero. Both wells were pumped simultaneous to show the well interference effects that would occur when the back-up needed to be on.

The delineated source water assessment area for Well #1 and the Back-up Well can best be described as a pie shaped corridor, approximately 0.3 miles wide at the wellhead and 1.0 miles wide at the furthest extent of the area, 2.5 miles to the south of the wellhead (Figure 2). The actual data used by DEQ in determining the source water assessment delineation area is available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

The dominant land use outside the Rogerson Water District area is agricultural. Highway 93 runs to the east of Rogerson, and the land outside of Rogerson is crossed by irrigation canals and ephemeral streams. Land use within the immediate area of the wellhead consists of very little urban land use as well as some agricultural land use and rangeland.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational

visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A potential contaminant inventory (PCI) of the study area was initially conducted in May 2001 for the original SWA report. After the new delineation was created, the PCI was conducted again. This process involved identifying and documenting potential contaminant sources within the Rogerson Water District Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ.

The delineated source water assessment area for both wells contain one identified potential source of contamination, Highway 93, in the 3-year TOT zone (Table 1). Highway 93 represents a potential source of contamination because it is a transportation corridor. Accidental releases of contaminants on this corridor, within the source water assessment area, could spill IOCs, VOCs, SOCs, or microbial contaminants on to the well-drained soil. These potential contaminants could migrate down through the fractured basalt in the vadose zone and possibly contaminate the Rogerson Water District source water. Figure 2 shows the location of Highway 93 relative to the wellhead.

Table 1. The Rogerson Water District, Well #1 Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
	Highway 93	0-3	Database Search	IOC, VOC, SOC, Microbes

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity to potential contaminants was high for the Rogerson Water District wells (Table 2). The soils within the delineation are classified as moderate- to well-drained, potentially allowing for faster conductance of contaminants. The vadose zone is made predominantly of fractured basalt according to the well logs. The first ground water being located within 300 feet of ground surface and

the well logs do not indicate 50 or more feet of low permeability clay between land surface and the producing zones.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The Rogerson Water District drinking water system consists of two wells that extract ground water for domestic use. The system construction scores were moderate for the Main Well and low for the Back-up Well. A sanitary survey was conducted in 2003. Well #1 was determined to be in substantial compliance with wellhead and surface seal standards. However, the sanitary survey noted that though the sanitary cap and casing seal on the well had been repaired since 1999, there was still a potential for soil borne contaminants to enter. This repair, if not already completed, should be addressed as soon as possible in order to prevent potential contamination of the source water. The well is not in the 100-year flood zone and is protected from surface flooding. The Back-up Well was determined to be in substantial compliance with wellhead and surface seal standards.

Completed in November 1980, Well #1 was drilled to a depth of 540 feet below ground surface (bgs). Steel casing was installed using a 0.25-inch thick, 12-inch diameter casing set to a depth of 30 feet bgs into "gray lava." The well has an open hole from 30 feet bgs to the bottom of the hole. The original static water level in 1980 was at 175 feet bgs. Well cuttings were used as an annular seal set to 18 feet bgs into "top soil." The Main Well has a pump capacity of 150 gallons per minute (gpm) and a yield of 100 gpm. The well is designed to produce 72,000 gallons per day (gpd) with a maximum daily production of 144,000 gpd.

Completed in May 2002, the Back-up Well was drilled to a depth of 477 feet bgs. Steel casing was installed using a 0.322-inch thick, 8-inch diameter casing set to a depth of 477 feet bgs into "brown ash." The well is screened from 275 feet to 470 feet bgs. The original static water level in 2002 was at 210 feet bgs. A bentonite annular seal was set to 65 feet bgs into "gray basalt." The Back-up Well has a pump capacity of 100 gpm and a yield of 160 gpm. The well is designed to produce 100,000 gpd with a maximum daily production of 144,000 gpd. A 22-hour well test was conducted at 160 gpm yielding 4 feet of drawdown. No well test information was listed on the well log.

The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Twelve-inch or greater diameter wells

require a casing thickness of at least 0.375-inches, eight-inch diameter wells require a casing thickness of 0.322-inches, and six-inch diameter wells require a casing thickness of 0.280-inches. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate. Casing is required to be sealed to a minimum of 18 feet bgs if there is a low permeability layer at that depth. Otherwise, surface seals must be extended into low permeability or consolidated zones. Well #1 received an additional point in the system construction category because not all the current well construction requirements are met. The Back-up Well is in compliance with current well construction requirements.

Potential Contaminant Sources and Land Use

The Rogerson Water District wells rated moderate (Table 2) for potential contaminant sources and land use for IOCs (e.g., nitrates) and SOCs (e.g., pesticides). Agricultural land use, high countywide chemical use, and the presence of Highway 93 within the delineated source water assessment area contributed to the moderate rankings. The Rogerson Water District wells rated low (Table 2) for potential contaminant sources and land use for VOCs (e.g., petroleum products) and microbial contamination (e.g., total coliform). These ratings are due to the fact that there is only one potential VOC and microbial contaminant source in the delineated source water area.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the Rogerson Water District Well #1 rated on the high susceptibility for IOCs and moderate susceptibility for VOCs, SOCs, and microbial contaminants. The Back-up Well rated moderate for all susceptibility categories, primarily due to the lower system construction score (Table 2). These moderate ratings are due to aquifer properties, high countywide farm chemical use, and the presence of a single identified potential contaminant source in the source water assessment area.

Table 2. Summary of the Rogerson Water District Wells Susceptibility Evaluation

	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
Well		IOC	VOC	SOC	Microbes		IOC	VOC	SOC	Microbials
Well #1	H	M	L	M	L	M	H	M	M	M
Back-up Well	H	M	L	M	L	L	M	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Nitrate represents a potential water chemistry issue recorded for the public water system. Nitrate was detected in the well water from September 1993 to November 2004 at concentrations approaching 25%

of the MCL. Detections of arsenic and fluoride were recorded for the well at concentrations well below current MCLs. The IOCs, arsenic and fluoride, detected in the Rogerson Water District well water may be naturally occurring in the formations in which the well was developed. No VOCs, SOCs, or microbial contaminants were detected in the well water.

Countywide farm chemical use is considered high in this area and the delineated source water area for the well is surrounded by a significant amount of agricultural land. Additionally, a potential source of contamination, Highway 93, exists in the delineated source water area. An increase in the number of potential sources of contamination in the source water assessment area will increase the total susceptibility of the well to potential contamination.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Rogerson Water District, source water protection activities should focus implementing any improvements listed in the 1999 Sanitary Survey. If arsenic, fluoride, or nitrate concentrations increase significantly, the Rogerson Water District should investigate various systems like ion exchange, reverse osmosis, or activated alumina that could be used to treat these chemicals.

Though water quality is generally good for The Rogerson Water District, the highly fractured nature of the basalt aquifer could lead to cross-contamination from shallower fractures to deeper fractures. The Rogerson Water District should carefully monitor any spills on Highway 93, within the source water assessment area. With the exception of Highway 93, the Rogerson Water District delineation contains no identified potential sources of contamination. The Rogerson Water District should seek to limit the development and operation of potential sources of contamination within the source water assessment area in order to ensure the future quality of the source water. Most of the source water protection designated area is outside the direct jurisdiction of the Rogerson Water District. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside of the direct jurisdiction of the Rogerson Water District. Partnerships with state and local agencies and industry groups should be established and are critical to success. Continued vigilance in keeping the well protected from surface flooding can also keep the potential for contamination reduced. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local drinking water protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office (208) 736-2190

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, mlharper@idahoruralwater.com, Idaho Rural Water Association, at 208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as "Superfund" is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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Attachment A

The Rogerson Water District
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : ROGERSON WATER DIST Well# : WELL #1
Public Water System Number 5420049 7/9/01 3:36:21 PM

1. System Construction		SCORE			
Drill Date	9/15/80				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2003			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	3	1	1	
4 Points Maximum		3	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		7	5	5	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		13	9	11	6
4. Final Susceptibility Source Score		13	12	12	12
5. Final Well Ranking		High	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : ROGERSON WATER DIST Well# : BACK-UP WELL
Public Water System Number 5420049 12/19/03 3:36:21 PM

1. System Construction		SCORE			
Drill Date	5/17/02				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2003			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		1			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	3	1	1	
4 Points Maximum		3	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		7	5	5	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		13	9	11	6
4. Final Susceptibility Source Score		10	9	9	9
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate